

REMARKS

Claims 1-34 have been canceled without prejudice to the subject matter therein and new claims 35-67 are presented for examination. These new claims have been added to more clearly point out and claim the present invention. Support for these claims may be found throughout the specification, e.g., at paragraphs [0018], [0019], [0055] and [0071] as well as FIG. 29 and FIG. 30. Applicants also submit that these claims are distinct from the claims of Applicants' U.S. Patent No. 6,713,854. Applicants further submit that these new claims present no new subject matter.

In the office action dated 8 February 2005 the Examiner objects to the drawings, makes a statutory double patenting rejection, and issues rejections under both 35 U.S.C. § 102 and 35 U.S.C. § 103.

I. OBJECTION OF DRAWINGS UNDER 37 CFR 1.83(a)

The Examiner first objects to the drawings under 37 CFR 1.83(a) as not showing a ball-grid array. The Examiner states, "[t]he drawings must show every feature of the invention in the claims" and further claims that the ball-grid array is not shown in the drawings. Applicants respectfully submit that Figs. 29 and 30 show integrated circuits connected to a carrier via ball-grid arrays (see 2905 in FIG. 29 and paragraph [0071]).

Applicants have also submitted additional FIG. 35 and FIG. 36 showing a carrier with a ball-grid array and integrated circuits connected to the carrier via ball-grid arrays. Support for a carrier with a ball-grid array can be found throughout the specification, for example, in paragraph [0019]. Also, support for integrated circuits connected by ball-grid array can be found, at least, in paragraphs [0018] and [0071]. Because entry of FIG. 35 and FIG. 36 show a ball-grid array on both the integrated circuit packages and the carrier, applicants submit that these drawings show every feature of the claimed invention.

II. DOUBLE PATENTING REJECTION UNDER 35 U.S.C. § 101

The Examiner rejects claims 1-34 as claiming the same invention as claims 1-34 of U.S. Patent No. 6,713,854. In response to this rejection, Applicants have submitted new claims 35-67. Applicants further submit that these claims are not coextensive in scope with Applicants' U.S. Patent No. 6,713,854 and thus, the double patenting rejection is now moot.

III. REJECTION OF CLAIMS 1-2, 12-14, 16-25 AND 27-34 UNDER 35 U.S.C. § 102(b).

The Examiner rejects claims 1-2, 12-14, 16-25 and 27-34 under 35 U.S.C. § 102 as being anticipated by U.S. Patent No. 4,744,862 issued to Ishii ("*Ishii*"). Applicants respectfully traverse this rejection.

In light of the newly presented claims, Applicants submit that *Ishii* does not anticipate independent claims 35, 45 and 57 and, therefore, also does not anticipate the associated dependant claims. In order to establish a rejection under 35 U.S.C. § 102, the prior art reference must show each and every element of the present claims. *Ishii* does not show each and every element of claims 35, 45 and 57. For example, *Ishii* does not show "first and second integrated circuit packages, each comprising a package body comprising an integrated circuit chip and a ball-grid array." The Examiner claims that "*Ishii* further discloses the IC package is a ball-grid array type, for example, using solder balls 16(a) and [16(b)] for electrical connection (FIG. 4)." Office Action page 4. FIG. 4 of *Ishii*, however, does not show an integrated circuit package with a ball-grid array. Instead, *Ishii* shows integrated circuit package connected to a carrier by leads and carriers with ball-grid arrays. *Ishii* shows integrated circuit chips with "straight leads" rather than a ball-grid array. Furthermore, *Ishii* teaches, "It is merely *necessary* that the leads are shaped so that the package body is half accommodated in the opening of the substrate when the leads are supported on the substrate." *Ishii* Col. 7 lines 50-54, (emphasis added). Thus, *Ishii* requires integrated circuit packages with leads and not integrated circuit packages with a ball-grid array. Thus, *Ishii* does not teach integrated circuits with a ball-grid array. Therefore, *Ishii* does not anticipate amended claims 35, 47 and 58..

**IV. REJECTION OF CLAIMS 3-11, 15 AND 26 UNDER 35 U.S.C. § 103(a)
OVER ISHII IN VIEW OF SHIM.**

The Examiner also rejects claims 3-11, 15, and 26 under 35 U.S.C. § 103(a) as being unpatentable over *Ishii* and further in view of U.S. Patent No. 6,683,377 issued to Shim, et al. ("*Shim*"). To establish a rejection under 35 U.S.C. § 103 the Examiner must show that the prior art references of record, singly or in combination, teach or suggest the claimed invention. As described above, *Ishii* standing alone does not show integrated circuits connected to a carrier by a ball-grid array. *Shim* also does not show integrated circuits connected to a carrier by a ball-grid array. The combination of *Ishii* and *Shim*, therefore, does not teach each and every element of the claimed invention. Thus, the amended claims are not obvious in light of *Ishii* in view of *Shim*.

Furthermore, *Ishii* teaches away from integrated circuit packages with a ball-grid array. For instance, *Ishii* states, "It is merely *necessary* that the leads are shaped so that the package body is half accommodated in the opening of the substrate when the leads are supported on the substrate." *Ishii* Col. 7 lines 50-54, (emphasis added). Thus, in *Ishii* specially shaped leads on the integrated circuit are necessary. Therefore, *Ishii* teaches away from integrated circuit packages with a ball-grid array.

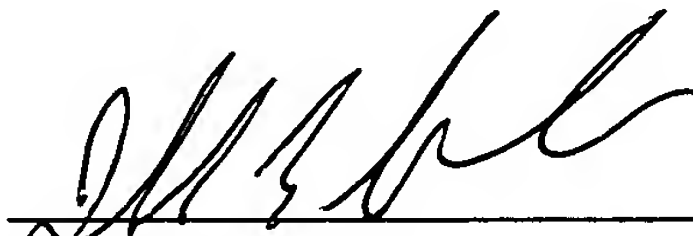
CONCLUSION

Applicants have cancelled claims 1-34 and presented new claims 35-67 to more distinctly point out and describe the present invention. Applicants have also accommodated the Examiner's rejection to the drawings, amended the specification to describe these amended figures, rendered moot the Examiner's double patenting rejection and traversed the 35 U.S.C. § 102 and § 103 rejections. Applicants respectfully request consideration of the present listing of claims.

If the Examiner has any questions or believes further discussion will aid examination and advance prosecution of the application, a telephone call to the undersigned is invited. If any extensions or fees are not accounted for, such extension is requested.

Respectfully submitted,

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Amendments to the Drawings

The attached sheet of drawings present FIG. 35 and FIG. 36. These figures show integrated circuit packages with a ball-grid array on a carrier with a ball-grid array. These figures do not add new subject matter. Support for these figures is found throughout the specification, for example, at paragraphs [0019], [0055], and [0071].

Attachment: New Sheet